Space Weather Forecast

Issued on Friday 24 January 2025 at 01:29 Local

This forecast provides a four-day assessment of space weather events. The probabilities stated below are for reaching or exceeding the given levels. For more information about space weather impacts please see the Met Office Space Weather Scales https://www.metoffice.gov.uk/weather/learn-about/space-weather/uk-scales

---

Space Weather Forecast Headline: Chance Moderate geomagnetic storm intervals this UTC weekend. Isolated minor radio blackouts likely at times throughout.

Analysis of Space Weather Activity over past 24 hours

Solar Activity: Activity was at Low levels, peaking with a high-end common class flare observed at 23/0203UTC from the largest and most complex sunspot region.

There are currently nine sunspot regions on the Earth-facing side of the Sun. The largest region is moderately magnetically complex and appears relatively stable. By contrast, two regions were seen to grow rapidly in the period: one in the southeast; and one in the northwest. Other regions' changes were generally smaller or non-existent.

No new Earth-directed Coronal Mass Ejections (CMEs) have been confirmed despite various small CME's which have been visible in imagery from two regions in the northwest, including the largest region on the disc. Only one new CME is apparent on available coronagraph imagery - a feature seen heading southwest which will be assessed.

Solar Wind / Geomagnetic Activity: Earth appears to be under the residual influence of the fast wind from a'coronal hole'-driven fast wind. The solar wind speed has remained slightly elevated, generally between 420 and 460 km/s. The associated magnetic field was weak, with the important north-south component frequently weakly negative. The net result of the above solar wind measures was Quiet to Unsettled geomagnetic activity.

Energetic Particles / Solar Radiation: Solar radiation remained at background levels.

Four-Day Space Weather Forecast Summary

Solar Activity: Moderate activity is forecast, with isolated Moderate-class flares likely and with a slight chance of isolated Strong-class flares.

Solar Wind / Geomagnetic Activity: The only 'coronal hole' fast wind to feature in the period is the current one which is now weak and is not expected to significantly influence the geomagnetic forecast with Quiet to Unsettled activity expected at first, and again late in the period.

In-between there is a Chance of Moderate geomagnetic storm intervals on Saturday 25 January, with this risk reducing later in the UTC weekend. This is because at least two CMEs are likely to give

---

Issued by Met Office Space Weather Advisor, Tel: +44 (0) 370 900 0100 Email: enquiries@metoffice.gov.uk

© Crown Copyright 2025. All Rights Reserved.

a glancing blow to Earth - firstly a CME from an Moderate class flare on 21 January, and secondly a filament eruption and a Moderate class related event on 22 January.

Energetic Particles / Solar Radiation: There remains a slight chance of enhancements exceeding the S1 minor radiation storm threshold, should any notable flares occur.

Geomagnetic Storms

Geomagnetic Storm Probability (Exceedance)	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Minor or Moderate	G1 to G2	No	10	40	30	10
Strong	G3	No	1	15	10	1
Severe	G4	No	1	1	1	1
Extreme	G5	No	1	1	1	1

Radio Blackouts - X-Ray Flares

X-Ray Flares Probability	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	R1-R2 (M Class)	No	60	60	60	60
Very Active	R3-R5 (X Class)	No	10	10	10	10

Solar Radiation Storms (High Energy Protons)

Radiation Storms Probability (Exceedance)	Level ($cm^{-2}sr^{-1}s^{-1}$)	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	≥ S1	No	15	20	20	20
Very Active	≥ S3 *	No	1	1	1	1
* S3 ≥ 10 MeV ≥ 1000 pfu and/or 50 MeV ≥ 10pfu. (pfu = $cm^{-2}sr^{-1}s^{-1}$)						

Issued by Met Office Space Weather Advisor, Tel: +44 (0) 370 900 0100 Email: enquiries@metoffice.gov.uk

© Crown Copyright 2025. All Rights Reserved.